

SAMPLE HANDLING DATA STANDARD

Standard No.: EX000014.1

January 6, 2006

Approved on January 6, 2006 by the
Exchange Network Leadership Council
for use on the Environmental
Information Exchange Network

Approved on January 6, 2006 by the
Chief Information Officer of the
U. S. Environmental Protection Agency
for use within U.S. EPA

This consensus standard was developed in collaboration by State, Tribal, and U. S. EPA representatives under the guidance of the Exchange Network Leadership Council and its predecessor organization, the Environmental Data Standards Council.

Foreword

The Environmental Data Standards Council identifies, prioritizes and pursues the creation of data standards for those areas where information exchange standards will provide the most value in achieving environmental results. The Council involves Tribes and Tribal Nations, state and federal agencies in the development of the standards and then provides the draft materials for general review. Business groups, non-governmental organizations, and other interested parties may then provide input and comment for Council consideration and standard finalization. Standards are available at <http://www.epa.gov/datastandards>.

1.0 INTRODUCTION

This Sample Handling Data Standard identifies descriptors for handling, treatment, and preservation of a sample in the laboratory and/or field activities.

1.1 Scope

This standard provides and describes data groupings that are used to exchange data related to sample handling, treatment, and preservation in the laboratory and/or field.

1.2 Revision History

Date	Version	Description
January 6, 2006	EX000014.1	Initial Environmental Data Standards Council Adoption

1.3 References to Other Data Standards

The standard relies on other standards to make it complete and provide the necessary support. Users should consider the Normative Standards (references), noted below, integral to the standard. These include:

- EMeasure [EX000010.1] Data Standard
- Method [EX000011.1] Data Standard
- Representation of Date and Time [EX000013.1] Data Standard

1.4 Terms and Definitions

For the purposes of this document, the following terms and definitions apply.

<u>Term</u>	<u>Definition</u>
Sample Handling	The means/procedures used to handle a sample for sample treatment and/or sample preservation.
Sample Treatment	The means used to treat a sample prior to measurement or sample preparation.
Sample Preservation	The means used to preserve a sample either in the field or at the laboratory.

1.5 Implementation

Users are encouraged to use the XML registry housed on the Exchange Network Web site to download schema components for the construction of XML schema flows (<http://www.exchangenetwork.net>).

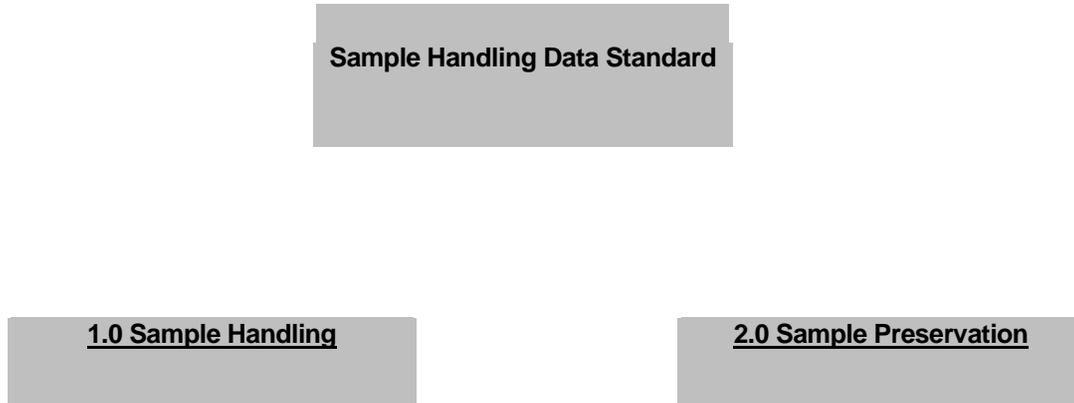
1.6 Document Structure

The structure of this document is briefly described below:

- a. Section 2.0 Diagram, illustrates the principal data groupings contained within this standard.
- b. Section 3.0 Sample Handling Data Standard Table, provides detailed information on the high level, intermediate and elemental Sample Handling data groupings. Where applicable, for each level of this data standard a definition, XML tag, note(s), example list of values and format are provided. The format column may include “A” to specify alphanumeric, “N” to designate numeric, “G” to denote a grouping, and “D” for time and date formats referenced in the Representation of Date and Time Data Standard.
- c. Data Element Numbering: For purposes of clarity and to enhance understanding of data standard hierarchy and relationships, each data group is numerically classified from the primary to the elemental level.
- d. Code and Identifier Metadata: Metadata, defined here as data about data or data elements, includes their descriptions and/or any needed context setting information required to identify the origin, conditions of use, interpretation, or understanding the information being exchanged or transferred. (Adapted from ISO/IEC 2382-17:1999 Information Technology Vocabulary—Part 17: Databases 17.06.05 metadata). Based on the business need, additional metadata may be required to sufficiently describe an identifier or a code. A note regarding this additional metadata is included in the notes column for identifier and code elements. Additional metadata for identifiers may include:
 - Code List Identifier, which is a standardized reference to the context or source of the set of codes
 - Additional metadata for codes may include:
 - Code List Identifier, which is a standardized reference to the context or source of the set of codes
 - Code List Version Identifier, which identifies the particular version of the set of codes
 - Code List Version Agency Identifier, which identifies the agency responsible for maintaining the set of codes
 - Code List Name, which describes the corresponding name for which the code represents
- e. Appendix A, Sample Handling Data Structure Diagram illustrates the hierarchical classification of the Sample Handling data standard. This diagram enables business and technical users of this standard to quickly understand its general content and complexity. Appendix B, lists the references for the Sample Handling Data Standard.

2.0 SAMPLE HANDLING DIAGRAM

This diagram specifies the major data groups that may be used to identify the characteristics and/or to catalog sample handling.



3.0 SAMPLE HANDLING DATA ELEMENTS TABLE

1.0 Sample Handling

Definition: Information describing sample handling procedures including sample treatment or sample preservation.

Relationship: None.

Notes: None.

XML Tag: SampleHandling

Data Element Name	Data Element Definitions	Notes	Format	XML Tags
1.1 Sample Handling Type Name	Identifies the type of sample handling conducted on a sample.	Permitted List of Values: <ul style="list-style-type: none"> • Sample Treatment • Sample Preservation 	A	SampleHandlingType Name
1.2 Sample Handling Method	Information describing the method used to treat or preserve the sample.	Note: Reference the Method [EX000011.1] Data Standard . The following items may be needed: Method Identifier, Method Name, Method Qualifier Type, Method Qualifier, Method Description Text, Method Type, Method Deviations, Method Reference Note: Multiple methods may be recorded. Example treatment types are filtration, homogenization, chemical surrogate addition, etc. Example preservation types are chemical preservation and thermal preservation. Possible descriptive information for homogenization may include subsampling, splitting, sieving, mixing, grinding protocols, etc. Possible descriptive information for chemical surrogate addition may include type and amount of surrogate added etc.	G	SampleHandlingMethod

Data Element Name	Data Element Definitions	Notes	Format	XML Tags
1.3 Sample Handling Amount	The amount (weight or volume) of the sample subject to handling.	Note: Reference the Measure [EX000010.1] Data Standard . The following items may be needed: Measure Value, Measure Unit Code, Measure Qualifier Code, Measure QA/QC Note: To be used when a determined amount of sample handled in procedures (e.g. in TCLP – Toxicity Characteristic Leaching Procedure) prior to sample preparation and analysis needs to be exchanged.	G	SampleHandlingAmount
1.4 Sample Handling Start Date	The starting date that a sample was subject to handling.	Note: Reference the Representation of Date and Time [EX000013.1] Data Standard .	D	SampleHandlingStartDate
1.5 Sample Handling Start Time	The starting time that a sample was subject to handling.	Note: Reference the Representation of Date and Time [EX000013.1] Data Standard .	D	SampleHandlingStartTime
1.6 Sample Handling End Date	The ending date that a sample was subject to handling.	Note: Reference the Representation of Date and Time [EX000013.1] Data Standard .	D	SampleHandlingEndDate
1.7 Sample Handling End Time	The ending time that a sample was subject to handling.	Note: Reference the Representation of Date and Time [EX000013.1] Data Standard .	D	SampleHandlingEndTime
1.8 Sample Handling Comments Text	Additional information relative to sample handling.	Note: This field could be used to indicate that no sample handling procedures were used.	A	SampleHandlingCommentText

2.0 Sample Preservation

Definition: The means used to preserve a sample either in the field or at the laboratory.

Relationship: None.

Notes: None.

XML Tag: SamplePreservation

Data Element Name	Data Element Definitions	Notes	Format	XML Tags
2.1 Chemical Preservative Used	Information describing the chemical means to preserve the sample.	Multiple values may be used. Example List of Values: <ul style="list-style-type: none"> pH adjustment Antioxidant Other (comment field) None 	A	ChemicalPreservativeUsedName
2.2 Thermal Preservative Used	Information describing the temperature means used to preserve the sample.	Multiple values may be used. Example List of Values: <ul style="list-style-type: none"> Wet ice (4°C) Cold packs (4°C) Frozen (0°C) Cool, <= 6°C None 	A	ThermalPreservativeUsedName

Appendix A

Sample Handling Data Structure Diagram

Sample Handling Data Standard

1.0 Sample Handling

1.1 Sample Handling Type Name

1.2 Sample Handling Method 1.3

Sample Handling Amount 1.4

Sample Handling Start Date 1.5

Sample Handling Start Time 1.6

Sample Handling End Date 1.7

Sample Handling End Time

1.8 Sample Handling Comments Text

2.0 Sample Preservation

2.1 Chemical Preservative Used

2.2 Thermal Preservative Used

Appendix B References

- i. ISO/IEC 2382-17:1999 Information Technology Vocabulary—Part 17: Databases 17.06.*